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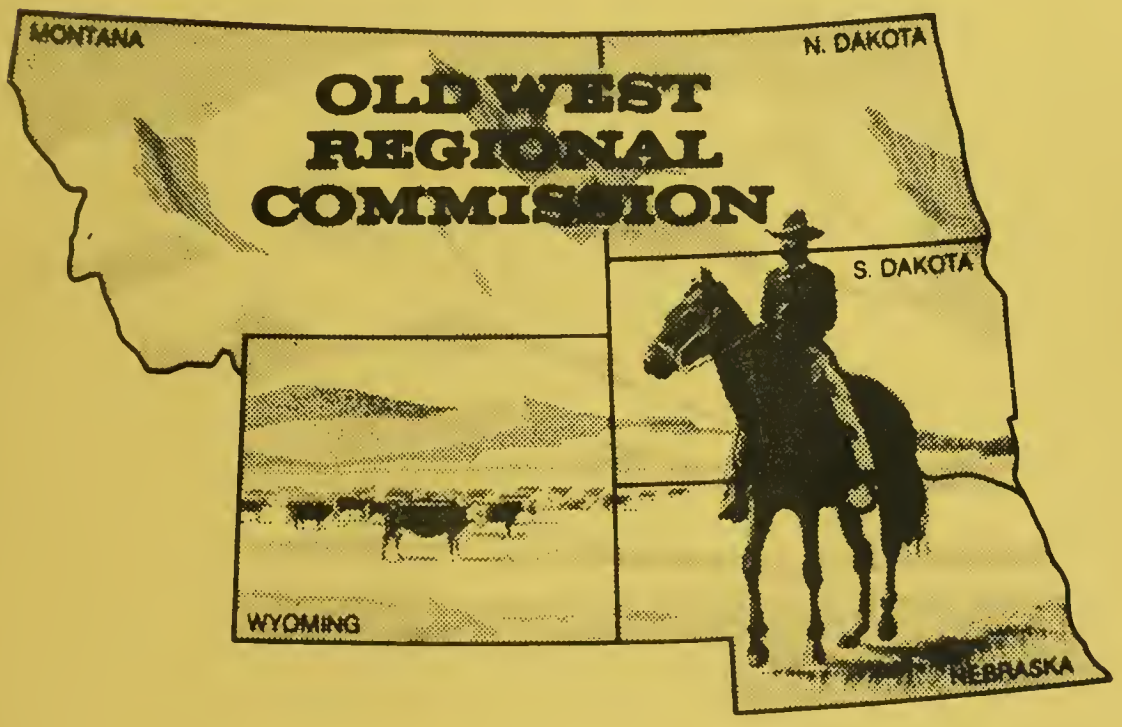
Impact of Governmental Regulations On Agriculture



Prepared by
Old West Regional Commission
Task Force

Department of Agricultural Economics
North Dakota Agricultural Experiment Station
North Dakota State University
Fargo, North Dakota

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Acknowledgment

This report is the result of a study made at the direction of and funded by the Old West Regional Commission. The Task Force consisted of personnel assignments from the Departments of Agricultural Economics at the Land Grant Universities in the five-state Old West Region. The persons assigned to the Task Force were:

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Impact of Governmental Policies and Regulations

Government policies and regulations are widely perceived as having significant implications for farmers, ranchers, and rural communities. A wide range of government activities at local, state, and national levels limit, direct, or aid the pursuit of agricultural interests in the Old West Region (OWR). The scope of governmental activities is far too large and their implications for regional agriculture is far too complex to be dealt with adequately within a single comprehensive research project. There are, however, specific policies and specific regulations which are researchable and which clearly merit research attention. Accordingly, the objective of this Task Force was to identify some of the governmental policies and activities that impact on production agriculture.

Members of the Task Force recognized that some governmental activities or regulations have differential impacts within the Old West Region. However, the topics that this Task Force adopted as suggestions for future research were based on the following criteria:

1. Is the topic or question important to production agriculture?
2. What is the magnitude of the impact (number of people involved--geographical area impact)?
3. Is it researchable?
4. What is the regional significance?

The Task Force concluded that the following areas of governmental activities are researchable and that the research results could be useful to agriculture in the Old West Region:

1. Environmental Protection Policies
* 2. Water Use Policy
3. Foreign Trade Policies
* 4. Transportation Regulations
5. Taxation
6. Public Land Policies
* 7. Price and Income Policy

* Priorities according to Dr. Don Anderson (NDSU)

Other Research Areas

Among the numerous possible research areas identified by the Task Force, three that were thought to warrant further study were later removed from the list of high priority research areas. These areas are Rural Community Services, Indian Rights, and Economic Development.

Research on rural community services was left off the final priority list because the Task Force agrees that government actions in this area, while undoubtedly affecting rural people, have only minor and indirect impacts on production agriculture, i.e., the research area ranked very low when judged by the most important criterion for ranking research areas.

Indian rights were removed from the high priority list because it appears that legal uncertainties must be cleared up before useful economic research could be done.

Economic development was removed because the problems of identifying government programs to stimulate economic (usually industrial) growth probably make evaluation of impacts on agriculture impossible with reasonable time and money cost at this time.

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Federal Regulatory Programs: Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), and The Food and Drug Administration (FDA)

There are several regulatory agencies and numerous programs within each agency which impact on agriculture. However, initial screening revealed that the regulatory agencies which have the most impact on agriculture are EPA, OSHA, and FDA. Each of these agencies was considered at length, but upon investigation it was found that OSHA regulations probably do not impact significantly on production agriculture in the Old West States. Most of the OSHA regulations which appear to have any significant cost or inconvenience impacts apply to the agribusiness sector and not to production agriculture (a notable exception are those which apply to migrant labor camps, but very little migrant labor is used in the Old West States). Researchable topics associated with EPA and FDA are described below.

Environmental Protection Agency

Problem Definition and Justification

The principal EPA regulations affecting production agriculture, excepting water quality which is treated in another context, are those associated with pesticides. (If one wished to expand the research scope to include food processing and other agribusiness firms, there would be numerous nonpesticide related EPA regulations which might be more important; for example, waste disposal for slaughtering plants and dust control in commercial elevators.) There are basically two types of pesticide regulations which impact substantially on agriculture: (1) restrictions with respect to application techniques, including training requirements, and application levels; and (2) withdrawal of pesticides from the market. The principal issue associated with these actions is whether the environmental improvements and health effects justify the economic costs. It has been alleged by industry people, scientists, and others that in many cases the environmental benefits do not justify the costs.

At the present time, a great deal of research has been and is being conducted regarding the environmental consequences of pesticides, but very little is being done to assess the benefits of pesticides. This is

apparently due in part to the existence of laws which require research on the environmental consequences of pesticides, but not on the benefits of pesticides. This imbalance, plus the economic significance of agriculture, indicates that research on the economic importance of pesticides in agriculture could contribute substantially to improved environmental decision making.

Objectives

(1) Evaluate the impact on farm income of restricting the use of selected pesticides and/or of withdrawing them from the market.

(2) Evaluate the nonfarm income effects of selected pesticide restrictions and/or withdrawals.

(3) Compare the results of Objectives 1 and 2 with what is known about environmental consequences and develop alternative regulations where appropriate.

Research Approach

Measuring the farm income effects (Objective 1) would involve assessing the impact on production costs and yields of selected EPA regulations. This would not be too difficult providing the physical relationships, such as the effect of a given herbicide on yields, are known. However, preliminary inquiry indicates that the technical data are not available in many cases and, therefore, it would be possible to research this question only for a small group of carefully selected regulatory actions.

Analyzing the nonfarm income effects (Objective 2) would involve both the multiplier effects of farm income changes and the effects on the chemical supply industry within the Old West Region. The appropriate approach in the case of multiplier effects would probably be to use existing input/output models. Measuring the income effects on the chemical industry would involve collection of sales, balance sheet, and related data from the affected firms.

Policy evaluation and development of alternative regulations (Objective 3) would involve the results of Objectives 1 and 2, plus a review of the literature on what is known about environmental consequences. Interviews with informed people both within and outside the industry might also be appropriate.

Selected References

Carlson, Gerald A., "A Decision Theoretic Approach To Crop Disease Prediction and Control," unpublished Ph.D. dissertation, University of California, Davis, 1969.

Casey, James E., Jr., "A General Model for Estimating the Economic and Production Effects of Specified Pesticide Withdrawals: A Cotton Application," unpublished M.S. thesis, Texas A&M University, College Station, 1973.

Davidson, A., and R. B. Norgaard, "Economic Aspects of Pest Control," European Plan Protection Organization Bulletin, 3(3):63-75, December, 1973.

Davis, Velmar W., et al., Economic Consequences of Restricting the Use of Organochlorine Insecticides on Cotton, Corn, Peanuts and Tobacco, Agricultural Economics Report No. 178, Economic Research Service, U.S. Department of Agriculture, March, 1970.

Delvo, Herman W., "Economic Analysis of Herbicide Use Restrictions Policies on Nebraska Cash Grain Farms," unpublished Ph.D. dissertation, University of Nebraska, Lincoln, 1971.

Duffy, Michael D., "An Economic Evaluation of Pest Management Services in Nebraska," unpublished M.S. thesis, University of Nebraska, Lincoln, 1977.

Edwards, William F., "Economic Externalities in the Agricultural Use of Pesticides and an Evaluation of Alternative Policies," unpublished Ph.D. dissertation, University of Florida, Gainesville, 1969.

Feder, G., and U. Regev, "Biological Interactions and Environmental Effects in the Economics of Pest Control," Journal of Environmental Economics and Management, 2(2):75-91, December, 1975.

Fox, Austin S., et al., Restricting the Use of Phenoxy Herbicides--Cost to Farmers, Agricultural Economic Report No. 194, Economic Research Service, Agricultural Research Service, U.S. Department of Agriculture, November, 1970.

Hall, D. C., and R. B. Norgaard, "On the Timing and Application of Pesticides," American Journal of Agricultural Economics, 55:5:198-201, May, 1973.

Headley, J. C., "Estimating the Productivity of Agricultural Pesticides," Journal of Agricultural Economics, L., February, 1968.

Hueth, D., and U. Regev, "Optimal Agricultural Pest Management With Increasing Pest Resistance," American Journal of Agricultural Economics, 56(3): 497-508, August, 1974.

Norgaard, R. B., "Integrating Economics and Pest Management," Apple, J. L., and R. F. Smith, eds., Integrated Pest Management, Plenum Press, New York, 1976, pp. 17-27.

Norgaard, R. B., "The Economics of Improving Pesticide Use," Annual Review of Entomology, 2:45-60, 1976.

Regev, U., A. P. Gutierrez, and G. Feder, "Pests as a Common Property Resource: A Case Study of Alfalfa Weevil Control," American Journal of Agricultural Economics, 58(2):186-197, May, 1976.

Vocke, Gary F., et al., "Economic Impacts on U.S. Agriculture From Insecticide, Fertilizer, Soil Loss, and Animal Waste Regulatory Policies," CARD Report 73, Center for Agricultural and Rural Development, Iowa State University, Ames, 1977.

Von Rumker, R., et al., "Evaluation of Pest Management Programs for Cotton, Peanuts and Tobacco in the United States," U.S. Environmental Protection Agency, (EPA-540/9/75-031), Washington, D.C., 1975, p. 108.

Water Policy

Four water policy areas were originally considered by the task force as potential research topics. They were: (1) eligibility requirements for receiving water from federally funded water projects (160-acre limitation), (2) section 208, water quality regulations, (3) groundwater regulations, and (4) federal-state cost-sharing policies. The first two of these alternatives appear to merit serious consideration as significant, researchable topics and they are accordingly presented as mini-proposals in the pages which follow. Topics 3 and 4 have been eliminated from consideration for several reasons. In the case of groundwater regulations (topic 3), preliminary investigations revealed that substantial research is already underway. Research on cost-share policies (topic 4) appeared to be premature because the Carter Administration initiatives in this area are currently too undefined to be effectively analyzed.

Eligibility Requirements for Receiving Water From Federally Funded Projects: The 160-Acre Limitation and the 50-Mile Residencey Requirement

Problem Definition and Justification

There are perhaps several eligibility requirements which merit investigation, but the ones of greatest concern are clearly the farm size requirement for irrigation projects (160-acre limitation) and the farm residencey requirement (to be eligible for receiving water a landowner must live within 50 miles of the land in question). Both of these provisions have received considerable press in recent months as the U.S. Department of Interior proceeds to enforce these regulations, after having ignored them for many years.

The basic issue associated with the 160-acre limitation is whether 160 acres is an efficient family farm unit. The question is complicated, however, by the fact that each immediate family member may own 160 acres. Thus, only state planning considerations and family size prevent establishment of relatively large "family" farms.

The residency requirement exists because of a desire to keep the benefits of irrigation projects from going to absentee landlords. If one takes this objective as given, the relevant question becomes how to best implement it. For example, should it be a mileage (place of residence) restriction or should absentee ownership be permitted in certain cases, such as long-term family ownership, but not in others, such as when some capitalist has recently purchased it.

It is unlikely that enforcing these eligibility requirements will have much of an impact on the Old West States, because preliminary indications are that relatively few landowners would be affected. However, the issue is an emotional one that is generating substantial political concern. Therefore, it might be desirable to research the topic in order to definitively establish the significance for the Old West Region of enforcing current regulations and/or establishing alternative policies.

Objectives

(1) Identify the socioeconomic characteristics of the landowners who receive water from federal irrigation projects in the Old West States.

(2) Measure economies of scale for the types of agricultural operations found on farms receiving water from federal irrigation projects in the Old West States.

(3) Analyze the farm income and wealth (land value) implications for the Old West Region of enforcing the current 160-acre limitation and 50-mile residency requirements.

(4) Propose and evaluate alternative regulations for achieving the same objectives, including consideration of criteria for developing flexible policies.

Research Approach

All objectives are clearly researchable using widely accepted methodologies. Identifying the socioeconomic characteristics of affected landowners (Objective 1) would involve use of secondary data from the Bureau of Reclamation and the Corps of Engineers, plus a mail survey of landowners and operators.

Economies of scale could probably be measured (Objective 2) by applying basic production theory and statistical techniques to secondary farm management data available from experiment stations and state and federal agencies.

Analyzing the farm income effects (Objective 3) would involve interpretations of the economies of scale data and the survey results. Land value data will need to be gathered in the survey of affected landowners in order to assess wealth impacts.

The evaluation of alternative policies component (Objective 4) would involve the same approach as Objective 3, but for different acreage limitations and residency requirements and/or for entirely different solutions to the problem. The alternatives could be drawn in part from those being suggested by Congress and the Carter Administration.

Selected References

Bish, Cyril, "Minimum Land Requirements for Specified Farm Incomes," unpublished M.S. thesis, University of Nebraska, Lincoln, 1967.

Bromley, Daniel W., and Bruce R. Beattie, "On the Incongruity of Program Objectives and Project Evaluation: An Example From the Reclamation Program," American Journal of Agricultural Economics, 55:472-476, August, 1973.

Carter, H., and C. Dean, "Cost-Size Relationships for Cash-Crop Farms in a Highly Commercialized Agriculture," Journal of Farm Economics, 43:264-277, May, 1961.

Hogan, Harry J., Acreage Limitation in the Federal Reclamation Program, National Water Commission, NTIS, U.S. Department of Commerce, 1972.

Hopkin, J., "Economies of Size in the Cattle Feeding Industry of California," Journal of Farm Economics, 40:417-429, May, 1958.

Drause, K., and L. Kyle, "Economic Factors Underlying the Incidence of Large Farming Units: The Current Situation," American Journal of Agricultural Economics, 52:748-761, December, 1970.

Miller, L., and W. Back, "Effect of Scientific Progress on Size and Efficiency of Farms in the Plains," Journal of Farm Economics, 40:1,250-1,262, December, 1958.

Ottoson, H., and A. Epp, "Size of Farm and Farming Efficiency in Northeastern Nebraska," Journal of Farm Economics, 38:803-812, August, 1956.

Raup, P., "Economies and Diseconomies of Large-Scale Agriculture," American Journal of Agricultural Economics, 51:1,274-1,283, December, 1969.

Taylor, Paul S., "160-Acre Law," in Seckler, David, ed., California Water, University of California Press, 1971.

Tolley, G. S., "Reclamation's Influence on the Rest of Agriculture," Land Economics, 35:176-180, May, 1969.

Section 208 of the 1972 Water Quality Act

Problem Definition and Justification

Section 208 of PL 92-500 calls for development and implementation of statewide water quality management plans, with emphasis on nonpoint water pollution. Adherence to the letter of the law would require that a plan be developed to make all lakes and streams fishable and swimable by 1983, where attainable. Furthermore, the major nonpoint pollutants are contained in run-off from agricultural lands and thus the potential implications for agriculture are substantial. It is possible, if not likely, that farmers may be required to modify tillage practices, change cropping patterns, reduce use of pesticides and/or invest in structural measures to reduce run-off. The basic problem with this program is that very little is known about either the economic implications of implementing such regulations, or about the water quality effects that would result. For example, there is very little information on the economics of reduced tillage or about the relationship between erosion and the sediment load in streams.

Unless changes in current law are forthcoming, each of the respective states will have to find ways to make lakes and streams fishable and swimable by 1983. If improved economic and technical information is not available before water quality planning decisions are made, it is likely that some regulations which are both inefficient and economically disastrous for agriculture will be approved.

Objectives

(1) Analyze the farm income effects of reduced tillage, reduced use of pesticides, greater use of cover crops, and other farm management practices which might be required to meet run-off restrictions associated with 208 water quality planning.

(2) Evaluate the water quality benefits associated with programs to reduce run-off from agricultural lands.

(3) Assess alternative water quality standards in a cost-benefit context.

Research Approach

Some of the farm income effects (Objective 1) are clearly researchable, while others may be impossible to pursue under a two-year time frame. In cases where the technical response data are available, e.g., the effect of reduced tillage on yields, a rather standard partial budgeting or linear programming approach would probably work well. However, technical response data on items, such as reduced use of pesticides, are scarce and in such cases a definitive economic assessment may not be possible. Another problem which is relevant to all elements of Objective 1 is that the results will be very dependent upon soils and climatic factors, making it difficult to come up with results that are generalizable for the region.

The evaluation of water quality benefits (Objective 2) would be a very difficult task involving problems associated with valuing amenities, as well as numerous technical factors, such as the effect of selected pollutants on human health and fish populations. These problems make definitive benefit estimates impossible, but it may nevertheless be useful to go as far as time and resources permit. A viable approach might be to assess the benefits from reducing selected pollutants in certain streams within the region, based entirely upon the literature, secondary data sources, and informed judgment.

Assessing water quality standards (Objective 3) would involve use of the results from Objectives 1 and 2, plus any additional relevant cost of control components, in order to assess the reasonableness of regulations to provide for fishable and swimable waters by 1983. This objective might also involve a comprehensive inventory of surface water resources in the Old West Region for the purpose of identifying bodies of water where stringent water quality standards are and are not appropriate.

Selected References

Alt, K. F., and E. O. Heady, "Economics and the Environment: Impacts of Erosion Restraints on Crop Production in the Iowa River Basin," CARD Report 75, Iowa State University, Ames, December, 1977.

Aspen Systems Corporation, Germantown, Maryland, "Compilation of Federal, State and Local Laws Controlling Nonpoint Pollutants, An Analysis of the Law Affecting Agriculture, Construction, Mining, and Silviculture Activity," U.S. Environmental Protection Agency, Washington, D.C., September, 1975.

Bernal, A. O., "Implications of Erosion Control Practices on Soil Moisture and Productivity of Western Iowa Soils," Doctoral Thesis, Iowa State University, Ames, 1972.

Brandt, G. H., et al., "An Economic Analysis of Erosion and Sediment Control Methods for Watersheds Undergoing Urbanization," Dow Chemical Company, Midland, Michigan, February, 1972.

Guntermann, K., et al., "Soil Loss from Illinois Farms, Economic Analysis Productivity Loss and Sedimentation Damage," University of Illinois, Urbana, December, 1974.

Heady, E. O., and V. S. S. V. Nagadevara, "Economic Impacts of State Environmental Programs in a National Framework: The Iowa Conservancy Law," Journal of Soil and Water Conservation, December, 1975.

Kasal, J., "Trade-Offs Between Farm Income and Selected Environmental Indicators," Technical Bulletin No. 1550, U.S.D.A., Economic Research Service, Washington, D.C., August, 1976.

Lake, J., and J. Morrison, "Environmental Impact of Land Use on Water Quality," U.S. Environmental Protection Agency, Region V, Chicago, Illinois, November, 1976.

Narayanan, A. U. S., and E. R. Swanson, "Establishing Trade-Offs Between Sedimentation and Farm Income," Journal of Soil and Water Conservation, November-December, 1972.

Pfeiffer, G. H., "Economic Impacts of Controlling Water Quality in an Irrigated River Basin," Doctoral Thesis, Washington State University, Pullman, Washington.

Powell, M. D., W. C. Winter, and W. P. Bodwitch, "Community Action Guidebook for Soil Erosion and Sediment Control," National Association of Counties Research Foundation, Washington, D.C., March, 1970.

Seitz, W. D., M. B. Sands, and R. G. F. Spitze, "Evaluation of Agricultural Policy Alternatives to Control Sedimentation," Research Report No. 99, University of Illinois, Urbana, February, 1975.

Stall, J. B., C. S. Conyers, and F. J. Lowes, "Man's Role in Affecting the Sedimentation of Streams and Reservoirs," Proceedings of the Annual American Water Resources Conference, Chicago University, Chicago, November 20-22, 1966.

Taylor, C. R., and K. K. Frokberg, "The Welfare Effects of Erosion Controls, Banning Pesticides, and Limiting Fertilizer Application in the Corn Belt," American Journal of Agricultural Economics, February, 1977.

Vocke, F., et al., "Economic Impacts on U.S. Agriculture from Insecticide, Fertilizer, Soil Loss, and Animal Waste Regulatory Policies," CARD Report 73, Iowa State University, Ames, September, 1977.

Weinberger, M. L., and H. L. Hill, "Benefit-Cost Relationships in Sediment Control," Soil Conservation Society American Proceedings, 1971.

Effects of International Market Promotion Activities for Agricultural Commodities

Problem Definition and Justification

International market promotion activities designed to stimulate exports of particular agricultural commodities have been performed historically by commodity groups or associations and by the federal government. Recently state governments have also become involved. Among several activities supported have been trade fairs, advertising, lobbying foreign governmental import agencies; and by the federal government, concessionary sales arrangements, low interest financing for exporters (and for foreign importers), shipping subsidies, foreign aid, and export subsidies.

Participants in these programs, from both public and private sectors, generally agree that promotional efforts are effective in stimulating exports. They also maintain that increased exports, of their particular products: improve farmers net incomes, help the overall U.S. trade balance, assure consumers of a continuing low cost supply of agricultural products, and are sufficient to justify the promotion costs.

Some observers who are not directly involved question whether any of these claims are correct. Among their arguments are that international trade is primarily controlled by supply and demand forces (which operate in a competitive market for agricultural commodities because of the homogeneous nature of the products from suppliers or potential suppliers) and by formal trade agreements or unilateral restrictions. Market promotion efforts have, at best, only slight and transitory effects on export volumes and on producers' incomes. Moreover, domestic consumers are hurt by the producer price increases that may occur, and in any case the benefits received do not justify the (public) costs.

Little research has been done to address the important questions raised by the different perceptions of the effects of promotional activities. And the need for research is increasing because of an increasing role seen for agricultural trade as part of a solution to the perennial "agricultural income problem," and because of pressures for increased market promotion activities by state govenments.

Objectives

A study having the following objective would be feasible and could give insights useful to decision makers considering market promotion.

To estimate the impacts of one public agricultural export promotional effort on the volume of exports of the particular commodity, the incomes of affected producers, and on domestic consumer prices; and to compare costs and benefits of the promotion activities.

Research Approach

Estimation of the foreign market impacts of promotional activities could be achieved using a case study method together with descriptive comparisons of the study market(s) with similar markets not a target of the promotional effort. The short-run impacts on domestic producers and consumers might be estimated by applying demand elasticity estimates for the particular commodities to the changes in export demand; to determine price and income changes. Estimates of longer run effects would be more difficult to obtain and would require consideration of supply response and market substitution caused by the changes in export demand.

Selected References

Hardin, Lowell S., and Leon F. Hesser, The Effectiveness of Agricultural Market Development Projects in Japan, Research Bulletin No. 719, Agricultural Experiment Station, Purdue University, West Lafayette, Indiana, May, 1961.

Kirby, James E., and John G. McNeely, Agricultural Market Development Abroad, Bull. B-1040, Agricultural Experiment Station, Texas A&M University, College Station, August, 1965.

Learn, Elmer W., and James P. Houck, An Evaluation of Market Development Projects in West Germany Under Section 104(a) of Public Law 480, Station Bull. 455, Agricultural Experiment Station, University of Minnesota, St. Paul, June, 1961.

Mayer, Leo V., "The Russian Grain Agreement of 1975 and Future United States Food Policy," University of Toledo Law Review, Vol. 7, No. 3, spring, 1976.

Stelly, Randall, and James E. Kirby, Developing Markets for U.S. Agricultural Commodities in Italy--An Economic Evaluation, MP-539, Agricultural Experiment Station, Texas A&M University, College Station, September, 1961.

Trade Policy Effects on Agriculture in Old West Regional States

Problem Definition and Justification

International trade policies of the United States are of special importance to the Old West Regional States because of the large role played by agricultural export and import substitution activities in the Regional economy. In recent years agricultural exports from the region accounted for about one-fourth of the total value of agricultural production in the Old West States. For some commodities, notably wheat, the reliance on export markets is much greater.

Although federal trade decision makers undoubtedly examine the impacts of possible decisions on agricultural exports and imports and on the general health of the agricultural economy, there is no evidence that attention is given to the differential impacts of policy decisions on particular regions. Thus, while a given set of trade policies may be clearly in the national interest in terms of balance of payments or volume of trade considerations, the incidence of the policies' effects may be such that special consideration should be given to effects on particular regions. Those who may be called upon to sacrifice in the marketplace because of national policy should have an important role in policy formation, and be assured compensation for the sacrifice made.

These two objectives imply that good information, which is not now available, about the specific impacts of trade policies and trading conditions on affected regions to be obtained. On the basis of knowledge of regional effects manifested in the past, improved prediction of the probable effects of alternative policy decisions made in response to changing national and international economic conditions might be possible. In turn, improved predictions would allow public officials and interested private groups or persons within the region(s) effected to make constructive inputs to the process of national policy formation.

Objectives

The types of problems about which more information are needed can be phrased as research objectives:

1. To determine the effects on grain exports of regulations about: government export financing or financial guarantees, grading for export, and voluntary export limitation agreements.

2. To determine the effects on domestic prices of the various livestock, meat, dairy, and sugar import restriction policies over the past few years.

3. To determine what part of these effects impact on the Old West Regional States and how important are they to the regional economy; to particular producers within the region.

4. To project the impacts of feasible trade policy alternatives for particular commodities or groups of commodities.

Research Approach

It is likely that most of the answers necessary to achieve the first two objectives are known as a result of previous research that evaluated the general impacts of policy changes. However, in general, the regional effects of the various policies have not been assessed. Nor have the likely regional effects of prospective policy changes been projected.

Answering the questions with respect to regional effects would involve: 1) a thorough literature search to compile estimates of the total effects on U.S. trade, in particular agricultural commodities, of policies of the various types (policy effects that have not been estimated in previous studies might warrant separate studies, with impact coefficients being estimated using multifactor regression analysis); 2) estimation of the proportion(s) of the total effects that would impact in the Old West States; and 3) translation of estimated regional trade impacts into price and/or income and resource employment changes.

Projections of the impacts of prospective trade policy changes could be accomplished through use of simulation models using as parameters the impact estimates (coefficients) developed in previous phases of the study(ies).

Selected References

Bredahl, M. E., and P. Gallagher, "Comment on Effects of an Exchange Rate Change on Agricultural Trade," Agricultural Economics Research, 29(2)45-48, April, 1977.

Butz, Earl L., "Domestic Plenty Through Farm Exports," address to the Newspaper Food Editors Conference, Drake Hotel, Chicago, October 5, 1975.

Carpenter, G. Alvin, "Summary of the Kennedy Round Trade Negotiations and Implications for Agriculture," address to the Greater Bakersfield Chamber of Commerce, Bakersfield, California, November 29, 1976.

Dalrymple, Dana G., A Directory of Publications Available on Foreign Trade and Markets, Mimeo D-22, Federal Extension Service, USDA, Washington, D.C., June, 1966.

Gemmill, Gordon, "An Equilibrium Analysis of U.S. Sugar Policy," AJAE, Vol. 59, No. 4, November, 1977, pp. 609-618.

International Monetary and Trade Rules and Midwest Agriculture, Report of Seminar Sponsored by M. G. and Johnnye D. Perry Foundation and University of Missouri, Special Report 211, Agricultural Experiment Station, University of Missouri, Columbus, 1978.

Johnson, Paul R., Thomas Grennes, and Marie Thursby, "Devaluation, Foreign Trade Controls, and Domestic Wheat Prices," AJAE, Vol. 59, No. 4, November, 1977, pp. 619-627.

MacLaren, D., "A Critique of the Proposed Agricultural Commodity Trading Arrangements Following UNCTAD IV," National Westminster Bank Quarterly Review, May, 1977, pp. 45-54.

Novakovic, Andrew M., and Robert L. Thompson, "The Impacts of Imports of Manufactured Milk Products on the U.S. Dairy Industry," AJAE, Vol. 59, No. 3, August, 1977, pp. 507-519.

Pagoulatos, E., "The Effects of E.E.C.'s Common Agricultural Policy on United States Farm Exports: An Empirical Estimate," Rivista Internationale di Scienze Economiche e Commerciali, 24(3)220-231, March, 1977.

Salathe, Larry, William D. Dobson, and Gustof Peterson, "Analysis of the Impact of Alternative U.S. Dairy Import Policies," AJAE, Vol. 59, No. 3, August, 1977, pp. 496-506.

Himes, Glen C., and David E. Errin, "What About Restricting Imports?", Economic Information for Ohio Agriculture, No. 482, April, 1968.

Renshaw, E. F., "Export Taxes and Controls on American Farm Products," National Tax Journal, 28(4)420-425, December, 1975.

Price and Income Policy

Problem Definition and Justification

Many aspects of farm income flows are influenced by government policy measures. Specific areas of influence are in the areas of crop insurance and disaster payments, direct farm payments, and regulatory measures relating to farm and agribusiness firm operations. Because of the far-reaching influence of these programs, virtually all sectors of agriculture are influenced by federal and state program actions. Because farmers face risk and uncertainty in many forms, it is necessary to evaluate the impact of government programs on the income variability and the income levels persisting throughout the agricultural sector. There is a specific need to evaluate the income stabilizing impacts of target prices and disaster payment programs throughout the plains area because of the relatively high yield risks that exist throughout this area.

Crop insuranace also is an important consideration to plains area agriculture, thus there is a need to identify the relationship between crop insurance and disaster payment programs. Further analysis is also needed of the impacts of current target price concepts on income variability among plains farmers.

The changes in farm programs that are evident in the 1977 Farm Act will generate a significant new governmental influence on farm operator decisions in the Old West States. A variety of set-aside requirements and the need to establish permanent cover on set-aside acres are areas of change that Great Plains farmers have not faced before. Additionally, cross-compliance requirements of program provisions make the economic significance of operating decisions extremely important. All of these changes have added to the complexity of the decision process for Old West area farmers and thus have created a need for analysis of program impact on area farmers.

Research Approach

Because the 1978 Farm Act has several new provisions, it would be useful to compare its impact on plains farmers by collecting data on income transfers and land use patterns in the 1978-1979 crop year. Comparative analysis of these data with previous program periods will reveal changes in the incidence of program impacts on plains farmers.

Program disbursements under the disaster payment should be analyzed and related to farm income patterns to measure the effectiveness of these programs. These payment levels should also be related to payments made under Federal Crop Insurance programs and their interrelationships analyzed.

Measures of agricultural income linkages to state and local tax revenues and levels of local business activity should be developed to provide a measure of the significance of income stability in agriculture.

A study of program participation in 1978-1979 by Old West States farmers should be conducted to identify the adaptability of present program provisions to area farmers needs. If suboptimal program use exists analysis should be made of why farmers did not participate and recommendations made for program changes to increase their use by plains area farmers.

Selected References

Aines, Ronald O., "Farm Land Valuation and Farm Programs," Journal of Farm Economics, H6, 1964.

Bostwick, Don, "Returns to Farm Resources," American Journal of Agricultural Economics, 51:5, December, 1969.

Costs of Producing Selected Crops in the United States--1975, 1976, and Projections for 1977, prepared for the Senate Committee on Agriculture and Forestry by the Economic Research Service, U.S. Department of Agriculture, Committee Print 80-606, January, 1977.

Floyd, John E., "The Effects of Farm Price Supports on the Returns to Land and Labor in Agriculture," Journal of Political Economy, April, 1965.

Friedman, Milton, Price Theory, Provisional Text, Aldine Publishing Company, Chicago, 1962.

Lee, John E., Jr., Calculating and Using Costs of Production for Policy Decisions--The Case of the United States, seminar paper presented at the Instituto de Economia Agricola, Sao Paulo, Brazil, Commodity Economics Division, ERS, U.S. Department of Agriculture, January 23, 1976.

Madden, J. Patrick, Economics of Size in Farming, AER-107, Economic Research Service, U.S. Department of Agriculture, February, 1967.

Schuh, G. Edward, Theoretical Considerations for Cost of Production Studies, seminar paper presented at the Instituto de Economia Agricola, Sao Paulo, Brazil, Purdue University, West Lafeyette, April, 1976 (unpublished).

Sharples, Jerry A., and Ronald Krenz, "Cost of Production: A Replacement for Parity?" Agricultural-Food Policy Review, AFPR-1, Economic Research Service, U.S. Department of Agriculture, January, 1977.

Stovall, John G., "Cost of Producing Agricultural Commodities," 1975 U.S. Agricultural Outlook, Committee Print, Senate Committee on Agriculture and Forestry, U.S. Government Printing Office, December 18, 1975.

Tweeten, Luther, Foundations of Farm Policy, University of Nebraska Press, Lincoln, 1970.

U.S. Department of Agriculture, Parity Returns Position of Farmers, report to the Congress of the United States, Senate Document No. 44 (82-519-0) 90th Congress, First Session, Government Printing Office, Washington, D.C., August 10, 1967.

Transportation

Transportation is highly important to states in the Old West Region. The relative isolation of the region from major centers of population and its specialization in agricultural products which are relatively heavy and bulky make these states heavily dependent on transport services. It is of critical importance to agricultural producers in particular and to all residents of the area that these transport services be reliable and efficient. Inasmuch as the operations of most commercial transport companies are subject to public utility regulation, it is particularly appropriate that public interests be adequately represented in decisions relating to future directions of transportation.

Regulation of Motor Carriers

Problem Definition and Justification

The cost and service implications of relaxing state and federal economic regulatory restrictions over motor carrier transportation are in need of evaluation. Public utility regulation was imposed upon the trucking industry at the behest of the industry itself in 1935, a time when economic activity in general and trucking activity in particular were at historic low levels.

It has been contended that regulatory restrictions on entry into the trucking business yields monopoly profits for existing firms and reduces their incentive to perform in the most efficient manner. It has been contended that route, point, and commodity restrictions create inefficient operating conditions. Since most investigators have determined the industry is one of relatively constant returns to scale, since most markets are large enough to support large numbers of firms and since investment is highly mobile, many observers have concluded that a high degree of competition would prevail in the absence of regulation. The carriers themselves maintain that competition would be disorderly and that geographically isolated small volume shippers would suffer a deterioration in service should regulatory restrictions be relaxed or eliminated. These opposing views are in need of objective evaluation.

Although shipment of raw agricultural products is exempt from federal economic regulation, backhauls of other goods are regulated and apparently badly hampered by regulatory restrictions in some instances. Agricultural inputs and other products needed by residents of rural communities are subject to regulation in any case.

Trucking is big business in the United States. Industry operating revenues in 1975 were $21 billion. Estimates of regulatory costs range as high as $8.2 billion per year. (Transportation is especially critical to residents of states in the Old West Region, states which are located long distances from major producing and consuming areas of the nation.)

Research Approach

Part of the research might logically involve development of appropriate methodology. A case study aimed at measuring and comparing traffic patterns and associated costs under the current regulated system with simulated

traffic patterns and costs under a deregulated system appears feasible. Linear programming or other optimizing procedures might be used to make the task manageable.

Selected References

Annable, James E., Jr., "The ICC, the IBT, and the Cartelization of the American Trucking Industry," Quarterly Review of Economics and Business, Vol. 13, summer, 1973, pp. 33-47.

Benishay, Haskel G., and Gilbert R. Whitaker, Jr., "Supply and Demand in Freight Transportation," Journal of Industrial Economics, Vol. 14, July, 1966, pp. 243-262.

The Case Against Deregulation, American Trucking Associations, Washington, D.C., updated.

Chisholm, Michael, "Economics of Scale in Road Goods Transport Off Farm Milk Collection in England and Wales," Oxford Economic Papers, October, 1959, pp. 282-290.

A Cost and Benefit Evaluation of Surface Transport Regulation, Bureau of Economics, Interstate Commerce Commission, Washington, D.C., 1976.

Economic Analysis and Regulatory Implications of Motor Carrier Service to Predominantly Small Communities, a final report to the U.S. Department of Transportation, R. L. Banks and Associates, Inc., Washington, D.C., June 24, 1976.

Farmer, Richard N., "The Case for Unregulated Truck Transportation," Journal of Farm Economics, May, 1964, pp. 398-409.

Gifford, Gilbert L., "The Small Shipment Problem," Transportation Journal, fall, 1970, p. 19.

_____, Interstate Trucking of Frozen Fruits and Vegetables Under Agricultural Exemption, Marketing Research Report No. 316, U.S. Department of Agriculture, Washington, D.C., 1959.

Joy, Stewart, "Unregulated Road Haulage: The Australian Experience," Oxford Economic Papers, July, 1964, p. 278.

Ladenson, Mark L., and Alan J. Stoga, "Returns to Scale in the U.S. Trucking Industry," Southern Economic Journal, January, 1974, pp. 390-396.

Kolsen, H. M., The Economics and Control of Road-Rail Competition, Sydney University Press, Sydney, Australia, 1968, pp. 137-138.

Miklius, Walter, Economic Performance of Motor Carriers Operating Under the Agricultural Exemption, Marketing Research Report No. 838, U.S. Department of Agriculture, Washington, D.C., 1969.

Miklius, Walter, Comparison of For-Hire Motor Carriers Operating Under the Agricultural Exemption With Regulated Motor Carriers, Marketing Research Report No. 769, U.S. Department of Agriculture, Washington, D.C., August, 1966, table 1, p. 7.

Miller, Edward, "Effects of Regulation on Truck Utilization," Transportation Journal, Vol. 13, fall, 1973, pp. 5-14.

Moore, Thomas Gale, "Deregulating Surface Transportation," Phillips, Almarin, ed., Promoting Competition in Regulated Markets, Brookings, Washington, 1975, pp. 55-98.

Moore, Thomas Gale, Trucking Regulation: Lessons From Europe, American Enterprise Institute for Public Policy Research, Washington, D.C., 1976.

Morton, Alexander L., "A Statistical Sketch of Intercity Freight Demand," Highway Research Record, No. 296, Highway Pricing, Highway Research Board, Washington, D.C., 1969, pp. 47-65.

Nelson, Robert A., Motor Carrier Freight Transportation in New England, a report to the New England Governors' Council, New England Governors' Committee on Public Transportation, Boston, 1956.

Perle, Eugene D., The Demand for Transportation, Department of Geography, University of Chicago, Chicago, 1964.

Roberts, Merrill J., "Some Aspects of Motor Carrier Costs: Firm Size, Efficiency and Financial Health," Land Economics, August, 1956, pp. 228-238.

Schwartzman, David, "Monopoly and Wages," Canadian Journal of Economics and Political Science, Vol. 26, August, 1960, pp. 428-438.

Sloss, James, "Regulation of Motor Freight Transportation: A Qualitative Evaluation of Policy," Bell Journal of Economics and Management Science, Vol. 1, autumn, 1970, pp. 327-356.

Snitzler, J. R., and R. J. Byrne, Interstate Trucking of Fresh and Frozen Poultry Under Agricultural Exemption, Marketing Research Report No. 224, U.S. Department of Agriculture, Washington, D.C., 1958.

Stigler, George J., "The Economies of Scale," Journal of Law and Economics, October, 1958, pp. 54-71.

Warner, Stanley L., "Cost Models, Measurement Errors, and Economics of Scale in Trucking," Burstein, M. L., et al., ed., The Cost of Trucking: An Econometric Analysis, William C. Brown Company, Inc., Dubuque, Iowa, 1965.

Variable Rail Rates

Problem Definition and Justification

The implications for shippers and carriers of temporally variable rail rates should be investigated. Unlike the relatively fixed rail rate structure, the demand for rail service is highly seasonal. Variability in demand in turn creates need for maintaining a large equipment reserve to service peak loads. Chronic difficulties are experienced in meeting these loads, leading to car shortages at grain harvest. In periods of slack demand, by contrast, costly equipment stands idle.

Prices for car services (per diem and demurrage) and rules for rationing car supplies are fixed and administered jointly by the Association of American Railroads and by the Interstate Commerce Commission. These rates which owning railroads charge using railroads and shippers, respectively, for use of their cars tend not to vary with demand for car service. Since freight tariffs are also insensitive to demand variability, and authoritarian means for allocating cars became essential. There is reason to suppose that neither the optimum allocation of cars in the short run nor the optimum size of car fleet can be achieved under the present system. Flexible rates would force shippers to pay their fair share of the costs associated with peak loads, would tend to even flows of traffic, and would permit use of a smaller equipment fleet.

Potential losses suffered under the present inflexible rate and car-service charge system stem from misallocated car resources in both short- and long-run, queing problems at grain elevators and other loading points during peak periods and administrative costs associated with the present allocative system. Losses in 1972, occasioned by inefficient per diem and car-service rules and orders alone have been estimated at $680 million.

Opponents of flexible rates contend that flexibility would lead to rate discrimination (seasonal rate differences which are not cost justified). They express fear that the overall level of rates would rise as a result of higher peak season rates. The issue of the optimal and expected incidence of rate variation and its implications for shippers, as well as carriers, need to be reached.

Research Approach

The proposed study will require an analysis of the carrier costs associated with alternative levels of load variability, as well as of

shipper costs incurred in deferring shipments until normally slack shipping periods. ICC Cost Scale data can be used in developing the former estimates, while grain storage and conditioning costs will be needed for the latter.

Selected References

Berglund, Mary F., unpublished Ph.D dissertation, Department of Economics, University of Nebraska, Lincoln, 1974.

"The Extent that Car Service Rules Restrict Freight Car Utilization," Staff Report, Washington, D.C., May 16, 1972 (mimeographed), p. 4.

Felton, J. R., "The Utilization and Adequacy of the Freight Car Fleet," Land Economics, August, 1971, pp. 267-273; Felton, J. R., "The Economics of Freight-Car Supply," Report to the Association of American Railroads, Lincoln, Nebraska, February, 1974 (mimeographed).

Felton, J. R., The Economics of Freight Car Supply, University of Nebraska, Lincoln, (in press).

Helmuth, Stefan Seidenfus, "The Regulation of Prices and Capacity Instruments of Optimal Factor Allocation in Transportation," and Conrad J. Oort, "The Theory of Economic Efficiency as Applied to the Road Transport Industry," in Criteria for Transport Pricing, Nelson, James R., ed., International Symposium on Transportation Pricing, Cornell Maritime Press, Inc., Cambridge, MD, 1964.

Little, Arthur D., Inc., Economic Impact of Freight Car Shortages, Report No. FRA-RP-71-1, U.S. Department of Transportation, Washington, D.C., May, 1971.

"Marginal Cost Pricing" and "Peak-Load Pricing," Marginal Cost Pricing in Practice, Nelson, James R., ed., Prentice-Hall, Inc., Englewood Cliffs, NJ, 1964, pp. 51-58, 59-89.

Waterway Policies

Problem Definition and Justification

Should barge firms pay for their use of publicly-supported inland waterways? If so, at what rate? Barge traffic on inland waterways in the United States has not been subject to user charges. Waterway construction, operating, and maintenance costs have been borne entirely by taxpayers. Many observers contend that the marginal costs of future waterway maintenance and improvements attributable to barge traffic should be paid by users. Railroad representatives have long maintained that provision of freeway facilities gives the nation's barge lines an unfair advantage over competing modes. Economists have often voiced criticism of resource misallocation associated with waterway subsidies. The waterway industry, on the other hand, contends that imposition of user charges would "kill" the traffic, creating losses for both shippers and water carriers.

Inland waterways account for about 13 percent of intercity freight tonnage movements in the United States; 243 billion ton miles were carried on the waterways in 1975. An estimated $8.3 billion in public funds has been spent on inland waterways since their inception. Annual outlays presently run at the rate of $420 million and presumably would increase should Locks and Dam 26 on the Mississippi River near Alton, Illinois, be rebuilt.

At the same time, average costs per ton mile to shippers of moving freight by water was only one-fourth that of shipment by rail in 1973. User charges might raise these costs significantly. Agriculture's share of waterway maintenance, operation, and rehabilitation costs has been estimated by one source at $39 million per year.

Research Approach

Research would involve measurement of marginal costs of providing waterway service to users and estimation of how user charges would affect barge rates. Responsiveness of traffic to changes in freight rates might be determined by measuring cross-elasticity of rail demand with respect to changes in barge rates. A linear programming model might be used to determine the impact of rate changes on shipping patterns.

Selected References

Association of American Railroads, Railroad Research Study Background Papers, prepared by the Transportation Research Board, Washington, D.C., July, 1975.

Bunker, Arvin R., "Grain and Fertilizer Movements in Response to Waterway User Charges," Illinois Agricultural Economics, Vol. 17, No. 1, January, 1977, pp. 19-26.

Moser, David E., and Michael W. Woolverton, Estimating Barge Transport Costs for Grain and Fertilizer, Agricultural Experiment Station Research Bulletin, University of Missouri, Columbia, (in press).

_____, Office of the Secretary, "The Barge Mixing Rule Problem: A Study of the Economic Regulation of Domestic Dry Bulk Commodity Transportation," Vols. I and II, March, 1973.

Upper Mississippi Waterway Association, "The Economic Impact of Waterborne Transportation on the Upper Mississippi River Basin," St. Paul, July, 1975.

U.S. Senate, "Prelude to Legislation to Solve the Growing Crisis in Rural Transportation, Part I--Transportation in Rural America," prepared by the Economic Research Service, U.S. Department of Agriculture, U.S. Government Printing Office, Washington, D.C., 1975.

Public Land Policies and Agriculture

Problem Definition and Justification

Public lands, consisting of both federal and federally-granted state lands, contribute significantly to the grazing resource utilized by the livestock sector within the five states of the Old West Regional Commission. Federal lands (primarily under Forest Service and BLM administration) constitute the following percentages of total land area within the OWRC states: Wyoming (48%), Montana (30%), South Dakota (6.7%), North Dakota (5.2%), and Nebraska (1.4%). State administered lands range from a low of 6.3 percent in Montana to a high of 7 percent in Nebraska and North Dakota (3). Total publicly-owned lands range from 55 percent of Wyoming to 8.4 percent of Nebraska. Government land policies may be expected to have significant but highly differential effects across the Old West Region.

The current use of state and federally administered lands reflects, in aggregate terms, the "multiple use" policy advocated by land use administrators (and mandated for federal lands by the Multiple Use-Sustained Yield Act of 1960). Public lands provide a large number of AUM's of grazing to the agricultural sector of OWRC states and also provide for timber production, wildlife, watershed, aesthetics, and recreation, in addition to minerals, such as oil and gas, coal and uranium (35). Certain uses may be viewed as complimentary. Conflicts have arisen among some other uses and require trade-off decisions on the part of decision makers charged with administration of such lands.

The AUM's of grazing provided by state and federal lands in the OWRC states are a significant factor in the production of beef and lamb. In Montana and Wyoming permits held by individual firms assume critical importance on a seasonal basis, allowing herd size to approach efficient size levels. However, the benefits accruing to the agricultural sector and local economies from such use are under critical review. User charges (fees) and conflicts with other uses are at the base of those reviews. Increasing attention to recreation, wildlife, aesthetics, and watershed habitat, as exemplified by the "key values concept," will impinge upon agricultural use of federal lands and upon other natural resource uses, such as timber and mineral production.

Access to state and federal lands for various multiple uses is also an issue and is affected by conflicts among uses and also by agency actions, such as RARE II (Roadless Area Review and Evaluation).

The concept of user charges for state and federal lands is a complex and emotional question currently under federal agency review (90). The OMB has determined that user charges for federal lands shall be based on "fair market value" (FMV). The administering agencies, the U.S. Bureau of Land Management and the U.S. Forest Service, have been proceeding to implement fees at FMV since 1969. A major problem arises in definition of FMV, a concept not as clear as may be supposed. The users' definition differs from that proposed by administrators and Congress.

The determination of FMV is, by agency agreement, to be based on values that would prevail in a competitive market (90). However, the locational patterns of public lands and leases introduces, in many cases, the elements of bilateral monopoly, with only one (or few) purchaser(s) and one supplier of the resource. The equilibrium price (value) and quantity, in theory, is then indeterminate. The issue of "fair" user charges--whether for grazing, timber, minerals, recreation, or wildlife and whether on state or federal lands--may be difficult to reconcile on economic grounds. The calculus of the decision process must recognize not only the economic issues of efficiency and equity, but also the access to political power of the individual parties.

A less controversial issue, but one of perhaps greater long-run consequence to agricultural, timber, or mineral uses involves decisions controlling or inhibiting access to the public lands. Increasing pressure from Congress and the judicial branch on land administrators to update and implement mandated land use plans may change the use patterns of large units of public lands, e.g., RARE II. That program, as well as others (Renewable Resources Planning Act of 1974, National Wilderness Preservation System) along with the "key value concept," may ultimately reduce the area devoted to agricultural, timber, or mineral production (35). Environmental impact statement (EIS) requirements concerning specific public land uses may also affect the disposition of those lands in terms of final use.

Objectives

The public-private land interface common throughout the western states provides a setting for a number of possible impacts associated with decisions concerning the use of the public lands. These impacts suggest areas for possible research.

In terms of user fees and access issues, policy changes advocated by public land administrators may have significant distributional effects, with negative effects likely to fall most heavily on the user industries. Increases in user fees and/or reductions in the resources allocated may induce changes in structure of the user industries. The long-term economic viability of firms which are heavily dependent on these resources, such as public range or timber, may also be affected. Employee's and input suppliers could also be adversely affected. These government regulations in OWRC states will probably not have great impact on consumers in the national market. The regulations affect a relatively small proportion of the nation's livestock or lumber production. Effects on mineral production could be greater in the future.

Public land policies will also affect coal and mineral developments, and in turn will affect agriculture on a very site-specific basis. The actual acreage affected would be relatively insignificant even if all federal leases are exercised. However, the peripheral issues of changing rural community structures, the subsequent demand for rural services, and the changes in tax structure would impact upon local agricultural production and communities.

It is typically assumed that conflicts occur among various multiple uses, such as grazing and wildlife or grazing and recreation. The exact nature and magnitude of such conflicts are not clear. Research is needed on supply of and demand for recreational resources and actual recreational use of public lands. Spatial and temporal considerations are important. The effect of and values or costs of marginal changes in supply and demand for recreation are important in determining the extent of economic conflict between recreation, wildlife, and other multiple uses. Furthermore, some evidence suggests that for many wildlife species, there is minimal competition with livestock for forage.

Based on the consensus of the Task Force participants, the issue of user charges, specifically grazing fees, and access were selected as being most relevant of this general set of topics. Specific objectives of a research proposal addressing user charges and access should include:

1. To describe the market for private leases and private leasing arrangements, determine private lease rates, and their relationship to "fair market value" for fee setting purposes.

2. To differentiate between costs of using federal, state, and privately owned leased land including specifically the effects of predator losses, and of costs associated with agency implementation of intensified management plans.

3. To determine costs and returns for public land users developing and using alternative sources of forage through range improvements, or range management techniques, such as grazing systems.

4. To determine costs and returns of public land users using alternative sources of forage including purchased feeds or improvements to cropland or meadows to increase harvested feed production.

5. To determine the net effect of reductions in AUM's of public grazing on the welfare of livestock producers.

Depending on the structure and depth of such a research project, meeting any one or more of the above objectives could entail a major research effort. Thus, it is perhaps unreasonable to expect one project to adequately cover all objectives. User charges and access for other resource use have not been mentioned. This should be recognized by OWRC or any agency involved in funding of research on user charges. The achievement of any objective listed above would, however, make a significant contribution to the resolution of this issue. Note that Objectives 1, 3, and 4 could be quite relevant for state or private land use, independent of public land use questions.

Procedure

It is envisioned that a substantial research effort would be required to adequately cover the objectives discussed in the preceding section. Given the nature and magnitude of these objectives, it is not possible to define a specific research procedure. Rather, an eclectic approach, using various methodologies would perhaps be needed. Some combination of descriptive and analytic approaches would be needed for most objectives.

A rather extensive set of survey data may be needed covering the "costs" discussed under specific objectives. In addition to providing descriptive information, such data may also be used to synthesize costs relationships or be used in representative firm analyses. Simulation analysis of a representative firm may be used to investigate the effects of alternative cost and policy assumptions on firm viability and structure. Aggregate measures of producer welfare associated with changes in access suggest some sectoral level analyses, such as an L.P. framework.

While admittedly brief, this discussion of an "appropriate" procedure may serve to point out general approaches to the problems implicit in the objectives. The correct procedure will be a function of the area of emphasis of any research proposal. Finally, the OWRC will ultimately define the scope of any grazing fee research through funding considerations.

Selected References

BIA, Indian Owned Range Resources Their Use and Apportionment, Report No. 250, Planning Support Group, Billings, Montana, U.S. Department of the Interior, Bureau of Indian Affairs, Washington, D.C., 1977a.

BLM, "The Taylor Grazing Act, as Amended and Supplemented," Information Bulletin No. 5, U.S. Department of the Interior, Bureau of Land Management, Government Printing Office, Washington, D.C., 1971.

BLM, Public Land Statistics, 1975, U.S. Department of the Interior, Bureau of Land Management, Government Printing Office, Washington, D.C., 1976.

BOB, "User Charges," Circular No. A25, Executive Office of the President, Bureau of the Budget, Washington, D.C., September 23, 1959.

BOB, "Natural Resources User Charges: A Study," Executive Office of the President, Bureau of the Budget, Washington, D.C., June, 1964.

Box, Thadis W., et al., "The Public Range and its Management," A Report to the President's Council on Environmental Quality, Executive Office of the President, Council on Environmental Quality, Washington, D.C., March 19, 1976.

Bredemeir, Lorenz F., "A Comparison of Factors That Affect Ranching Profits," Journal of Range Management, Vol. 23, No. 5, September, 1970.

Brewer, Michael F., "Public Pricing of Natural Resources," Journal of Farm Economics, Vol. 44, No. 1, February, 1962.

Bromley, Dan W., "Economic Importance of Federal Grazing: An Interindustry Analysis," Journal of Range Management, Vol. 22, No. 1, January, 1969.

Calef, Wesley, Private Grazing and Public Lands, Studies of the Local Management of the Taylor Grazing Act, The University of Chicago Press, Chicago, Illinois, 1960.

Campbell, J. A., "A Range Land Rental System Based on Grazing Capacity and the Price of Beef," Journal of Range Management, Vol. 4, No. 6, November, 1951.

CAST, "Livestock Grazing on Federal Lands in the Eleven Western States, A Report by a Task Force," Council for Agricultural Science and Technology, Iowa State University, Ames, January, 1974.

Caton, Douglas D., et al., "Economic Relationship of Grazing Fees and Permitted Use of Public Rangelands to Net Income of Western Livestock Ranches: A Regional Analysis," Administrative Report to BLM, U.S. Department of the Interior, FS U.S. Department of Agriculture, U.S. Department of Agriculutre, Economic Research Service, Washington, D.C., 1962.

Caton, Douglas D., et al., "Effects of Changes in Grazing Fees and Permitted Use of Public Rangelands on Income of Western Livestock Ranches," ERS No. 248, a study made by Economic Research Service, Forest Service Bureau of Land Management, Montana State College, University of Arizona and Utah State University, U.S. Department of Agriculture, Economic Research Service, Washington, D.C., 1965.

Ciriacy-Wantrup, S. V., "Criteria and Conditions for Public and Private Ownership of Range Resources," Journal of Range Management, Vol. 11, No. 1, January, 1958.

Clawson, Marion, The Western Range Livestock Industry, first edition, the American Forestry Series, McGraw-Hill Book Company, Inc., New York, 1950.

Clawson, Marion, "How Much Should Users of Public Lands Pay," American Forests, April, 1965b.

Clawson, Marion, The Federal Lands Since 1956, Recent Trends in Use and Management, published for Resources for the Future, Inc., by the Johns Hopkins Press, Baltimore, 1967.

Clawson, Marion, and Burnell Held, The Federal Lands: Their Use and Management, published for Resources for the Future, Inc., The Johns Hopkins University Press, Baltimore, 1957.

Colorado Board of Land Commissioners, "Surface Leases: State School Lands," Laws, Rules, Regulations (and) Policies, Colorado State Board of Land Commissioners, Department of Natural Resources, Denver, June 1, 1969.

Cook, C. Wayne, and Lorin W. Harris, "Nutritive Value of Seasonal Ranges," Bull. 472, Utah Agricultural Experiment Station, Utah State University, Logan, April, 1968.

Crampton, E. W., and L. E. Harris, Applied Animal Nutrition: The Use of Feedstuffs in the Formulation of Livestock Rations, second edition, W. H. Freeman and Company, San Francisco, 1969.

Davis, K. M., et al., "Relationship Between Forage Intake and Gains of Grazing Steers," Journal of Range Management, Vol. 23, No. 6, November, 1970.

ERS, "Characteristics of Sheep Production in the Western United States," Agricultural Economic Report No. 345, U.S. Department of Agriculture, Economic Research Service, Government Printing Office, Washington, D.C., 1976a.

ERS, "Estimated Production and Expenses for Beef Cow-Calf Enterprises in Five Regions of the U.S.," Livestock and Meat Situation, LMS 210, U.S. Department of Agriculture, Economic Research Service, Government Printing Office, Washington, D.C., 1976b.

ERS, "Factors in the Decline of the Western Sheep Industry," Agricultural Economic Report No. 377, U.S. Department of Agriculture, Economic Research Service, Government Printing Office, Washington, D.C., 1977a.

ERS, "Sheep and Lamb Losses to Predators and Other Causes in the Western United States," Agricultural Economic Report No. 369, U.S. Department of Agriculture, Economic Research Service, Government Printing Office, Washington, D.C., 1977b.

ERS, "Enterprises Budgets for Western Commercial Sheep Businesses, 1974," ERS-659, U.S. Department of Agriculture, Economic Research Service, Washington, D.C., March, 1977c.

Ferrell, Charles Stewart, "Proprietary Duties of the Federal Government Under the Public Land Trust," Michigan Law Review, Vol. 75, No. 3, January, 1977.

FS, "Grazing Fees on National Forest Range, Past History and Present Policy," CI Report No. 3, U.S. Department of Agriculture, Forest Service, Washington, D.C., June, 1969a.

FS, "Rest-Rotation Grazing at Harvey Valley," Research Paper PSW-77/1972, U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station, Berkeley, 1972.

FS, "The Principal Laws Relating to Forest Service Activities," Agriculture Handbook No. 453, U.S. Department of Agriculture, Forest Service, Government Printing Office, Washington, D.C., 1974.

FS, "Wildland Planning Glossary," General Technical Report PSW 13/1976, Pacific Southwest Forest and Range Experiment Station, Forest Service, U.S. Department of Agriculture, Berkeley, 1976a.

FS, Annual Grazing Statistical Report: Use Summary, U.S. Department of Agriculture, Forest Service, October, 1976.

FS, The Nations Renewable Resources Program, An Assessment, 1975, U.S. Department of Agriculture, Forest Service, February, 1976.

FS, Roadless Area Review and Evaluation (RARE II), Mimeo, U.S. Department of Agriculture, Forest Service, Rocky Mountain Region, Lakewood, Colorado, November, 1977.

GAO, "Land Use Planning, Management, and Control-Issues and Problems," CED-77-101, study by the Staff of U.S. General Accounting Office, General Accounting Office, Comptroller General, Washington, D.C., July 28, 1977.

Gardner, Delworth B., "Transfer Restrictions and Misallocation in Grazing Public Range," Journal of Farm Economics, Vol. 44, No. 1, February, 1962a.

Gardner, Delworth B., "Wealth Losses to Ranchers From Reduced Forest Grazing," National Grower, Vol. 20, No. 21, March, 1962b.

Gardner, Delworth B., "A Proposal to Reduce Misallocation of Livestock Grazing Permits," Journal of Farm Economics, Vol. 45, No. 1, February, 1963.

Gates, Dillard H., "Integrated Management of Public and Private Lands," Journal of Range Management, Vol. 17, No. 5, September, 1964.

Gebhardt, Karen, "The Economic Impact of Changes in the Number of Sheep Grazing on the Gallatin National Forest - Absaroka Mountains," Staff Paper 75-10, Department of Agricultural Economics, Montana State University, Bozeman, 1974.

Gray, James R., "Are Federal Domain Fees Discriminatory?" The National Wool Grower, Vol. 59, No. 5, May, 1969.

Harris, Grant A., and Wallace R. Hoffman, "Determining Equitable Grazing Fees for Washington Department of Natural Resources Land," Journal of Range Management, Vol. 16, No. 5, September, 1963.

Heady, Harold F., and James Bartolome, "The Vale Rangeland Rehabilitation Program: The Desert Repaired in Southeastern Oregon," USDA Forest Service Resource Bulletin PNW-70, U.S. Department of Agriculture, Pacific Northwest Forest and Range Experiment Station, Portland, 1977.

Helming, William C., "Economic Effect of Grazing Fee Increase to Range Cattle Industry," American Cattle Producer, January, 1966a.

Hibbard, Horace Benjamin, A History of the Public Land Policies, The University of Wisconsin Press, Madison, 1965.

Hooper, Jack F., "Possessory Interest: Implications for Decisions Concerning Grazing Fees," Center Study Paper 68-4, Economics Research Center, Utah State University, Logan, 1968.

Hooper, Jack F., "Federal Grazing Permits: A Case for Possessory Interest," The Appraisal Journal, January, 1971.

Infanger, Carlton A., "Economic Significance of Federal Ownership, Bureau of Land Management Administered Lands on Selected Montana County Incomes," Agricultural Economic Research Report No. 21, Montana State College, Bozeman, 1964.

Idaho Department of Lands, "Second Annual Report, 1975-1976," Idaho State, Idaho Department of Lands, Boise, 1976.

Jefferies, Gene L., "The Marginal Value of Public Grazing Permits to Arizona Ranchers," thesis submitted to faculty of Department of Agricultural Economics, University of Arizona, Tucson, 1946.

Jensen, Bartell C., "Determining Grazing Fees on National Forests," Utah State University, Logan, 1967.

Kearl, W. Gordon, "Fees and Charges as Tools of Public Policy: A Discussion," paper presented at SRM annual meeting in New Orleans, Louisiana, February, Journal of Range Management, Vol. 19, No. 5, September, 1966.

Kearl, W. Gordon, "Net Returns to Rangelands and Ranchlands," Fourteenth Annual Beef Cattle Short Course, Department of Agricultural Economics, University of Wyoming, Laramie, 1973.

Krutilla, John V., and Anthony C. Fisher, The Economics of Natural Environments, published for Resources for the Future, Inc., by Johns Hopkins University Press, Baltimore, 1975.

Leistritz, F. Larry, "Cattle Ranches Using Federal Land in Western North Dakota: Resources, Costs, and Returns," Agricultural Economics Report No. 92, Department of Agricultural Economics, North Dakota Agricultural Experiment Station, North Dakota State University, Fargo, 1972.

Leistritz, F. Larry, and Edward V. Dunn, "An Economic Analysis of Grazing Fee Levels on Federal Range Lands," Agricultural Economics Report No. 76, Department of Agricultural Economics, Agricultural Experiment Station, North Dakota State University, Fargo, April, 1971.

Leistritz, F. Larry, and Donald Schumacher, "An Economic Evaluation of Grazing Fees for Federal Rangelands in North Dakota, Investigation Period: July 1972-August 1973," (unpublished progress report to the North Dakota Grazing Association, August 27), Department of Agricultural Economics, North Dakota State University, Fargo, 1973.

Leistritz, F. Larry, and Donald Schumacher, "Final Report, Cooperative Agreement 16-250-CA, Investigation Period: October 15, 1971-December 31, 1973," Department of Agricultural Economics, North Dakota State University, Fargo, May, 1974.

Martin, William E., and Gene L. Jefferies, "Value of Public Grazing Permits," Progressive Agriculture in Arizona, Vol. 17, No. 2, College of Agriculture, University of Arizona, Tucson, March-April, 1965.

McConnen, R. J., "Public Land Grazing and Ranch Economics," Staff Paper 76-10, Department of Agricultural Economics, Montana State University, Bozeman, 1976.

McDowell, James I., and Jerome E. Johnson, "An Economic Analysis of Alternative Methods for Establishing Grazing Rentals: On School Lands in North Dakota," Agricultural Economic Report No. 37, Department of Agricultural Economics, North Dakota State University, Fargo, September, 1964.

Montana Department of State Lands, "Statistical Report for the Period Beginning July 1, 1974, to June 30, 1976," Montana State Department of State Lands, Commissioner of State Lands, Helena, 1976.

Nass, Roger D., "Mortality Associated With Sheep Operations in Idaho," Journal of Range Management, Vol. 30, No. 4, July, 1977.

New Mexico State Land Office, "Annual Report, Sixty-Fourth Fiscal Year, July 1, 1975, to June 30, 1976," New Mexico State, State Land Office, Commissioner of Public Lands, Santa Fe, 1976.

New Mexico State University, "Local Benefits of National Forest Resources in North-Central New Mexico," Research Report 327, Agricultural Experiment Station, New Mexico State University, Las Cruces, 1976.

Nielsen, Darwin B., "The Potential Impact of Alternative Fee Adjustments," Agriculture Economic Series, Number 67-1, a special report, U.S. Department of Agriculture, Forest Service, and Utah Agricultural Experiment Station, Utah State University, Logan, 1967.

Nielsen, Darwin B., "Economic Implications of Variable Versus Single Grazing Fees," Journal of Range Management, Vol. 25, No. 1, January, 1972.

Nielsen, Darwin B., and Barton F. Bailey, "An Analysis of Forest Service Grazing Statistics," a special report, Agriculture Economic Series 70-2, Forest Service, U.S.D.A., and Utah Agricultural Experiment Station, Cooperating, Agricultural Experiment Station, Utah State University, Logan, 1970a.

Nielsen, Darwin B., and Barton F. Bailey, "A Case Study of Public Grazing in Rich County, Utah," Agriculture Economic Series, No. 70-3, a special report, U.S. Department of Agriculture, Forest Service, and Utah Agricultural Experiment Station, Utah State University, Logan, August, 1970b.

Nielsen, Darwin B., and Keith N. Roberts, "Position Statement on Current Grazing Fee Issues and Problems," Agriculture Economic Series, No. 68-3, (revised), Department of Agricultural Economics, Utah Agricultural Experiment Station, Utah State University, Logan, November, 1968.

Nielsen, Darwin B., and Boyd E. Wennergren, "Public Policy and Grazing Fees on Federal Lands: Some Unresolved Issues," Land and Water Law Review, Vol. 5, No. 2, (copyright), University of Wyoming, Laramie, 1970.

Nielsen, Darwin B., and Robert G. Williams, "Determining Variable Grazing Fees on Forest Service Ranges," Agriculture Economic Series, No. 70-1, a special report, U.S.D.A., Forest Service, and Utah Agricultural Experiment Station, Utah State University, Logan, August, 1970.

Nielsen, Darwin B., and John P. Workman, "The Importance of Renewable Grazing Resources on Federal Lands in the Eleven Western States," Circular 155, Utah Agricultural Experiment Station, Utah State University, Logan, November, 1971.

Olson, Carl E., and John W. Jackson, "The Impact of Change in Federal Grazing Policies on South Central Wyoming Mountain Valley Cattle Ranches," Research Journal 96, Agricultural Experiment Station, University of Wyoming, Laramie, November, 1975.

Peryam, Stephan J., and Carl E. Olson, "Impact of Potential Changes in BLM Grazing Policies on West-Central Wyoming Cattle Ranches," Research Journal 87, Agricultural Experiment Station, University of Wyoming, Laramie, April, 1975.

PLLRC, Digest of Public Land Laws, prepared for the PLLRC by Shepard's Citations, Inc., Public Land Law Review Commission, Government Printing Office, Washington, D.C., 1968.

PLLRC, One-Third of the Nation's Land, a report to the President and to the Congress by the Public Land Law Review Commission, Public Land Law Review Commission, Government Printing Office, Washington, D.C., 1970a.

PLLRC, User Fees and Charges for Public Lands and Resources, prepared by the staff of the Public Land Law Review Commission, Public Land Law Review Commission, Washington, D.C., 1970b.

Rader, Lynn, "Grazing Values Within the National Forest System," presented before Society of American Foresters, Seattle, 1966.

Roberts, N. K., "Economic Foundations for Grazing Use Fees on Public Lands," Journal of Farm Economics, Vol. 45, No. 4, November, 1963.

Roberts, N. K., and Kerry C. Gee, "Cattle Ranches Using Public Ranges Year-Long," Bull. 440, prepared for BLM, U.S. Department of Interior, Forest Service, U.S. Department of Agriculture, by Utah Agricultural Experiment Station, Utah State University, Logan, February, 1963.

Roberts, N. K., and Mardell Topham, "Discovering Grazing Values, A Special Report," Agricultural Economic Series 65-3, Bureau of Land Management, U.S. Department of Interior; Forest Service, U.S. Department of Agriculture; and Agricultural Experiment Station, Cooperating, Agricultural Experiment Station, Utah State University, Logan, 1965.

Roberts, N. K., and E. B. Wennergren, "The Economics of Selecting and Administering State Lands for Grazing Use," Bull. 443, Agricultural Experiment Station, Utah State University, Logan, May, 1963.

Robinson, Glen O., The Forest Service, A Study in Public Land Management, published for Resources for the Future, Inc. by the Johns Hopkins University Press, Baltimore, 1975.

Thomas, Gerald W., "Livestock Grazing on Public Lands: Unity for Political, Economic, and Ecological Reasons," Journal of Range Management, Vol. 26, No. 4, July, 1973.

Tigner, James R., and Gary E. Larson, "Sheep Losses on Selected Ranches in Southern Wyoming," Journal of Range Management, Vol. 30, No. 4, July, 1977.

Trierweiler, John, et al., "Review of Public Land Grazing Fees," a report prepared by a technical committee from: ERS, FS, and SRS, U.S. Department of Agriculture, and Bureau of Land Management, U.S. Department of Interior, (published: Federal Register, Vol. 42, No. 24, February 4, 1977), U.S. Department of Agriculture, Forest Service, U.S. Department of the Interior, Washington, D.C., November 15, 1976.

USDI, Study of Fees for Grazing Livestock on Federal Lands, a report from the Secretary of Interior and Secretary of Agriculture, U.S. Department of Interior, October 21, 1977.

U.S. Federal Court, "J. R. Broadbent, et al., vs. Walter J. Hickel," U.S. District Court of Utah before District Judge A. Sherman Christensen, Salt Lake City, March 13, 1969.

U.S. Federal Court, "Pankey Land and Cattle Company vs. Clifford M. Hardin and Walter J. Hickel," District Court No. 7869 and 7870, U.S. Tenth Circuit Court of Appeals, Albuquerque, June 1, 1970.

U.S. Departments of Interior and Agriculture, "User Charges for Grazing," joint report to the Senate Committee on Interior and Insular Affairs from the Secretary of the Interior and Secretary of Agriculture, U.S. Department of the Interior, U.S. Department of Agriculture, Washington, D.C., November, 1969.

U.S. House of Representatives, "Review on Grazing Fees," hearings before the Subcommittee on Public Lands of the Committee on Interior and Insular Affairs, House of Representatives, 91st Congress, First Session, Serial No. 91-1, Government Printing Office, Washington, D.C., March 4-5, 1969.

U.S. House of Representatives, "Public Land Policy and Management Act of 1975," hearings before the subcommittee on Public Lands of the Committee on Interior and Insular Affairs, House of Representatives, 94th Congress, First Session, H.R. 5-24 and H.R. 5622, Serial No. 94-9, Government Printing Office, Washington, D.C., March 21, 24, 25 and April 7 and 11, 1975.

U.S. House of Representatives, "Separate, Supplemental, and Dissenting Views to Accompany H.R. 13777," Report No. 94-1163, 94th Congress, Second Session, U.S. Congress, Government Printing Office, Washington, D.C., May 15, 1976.

U.S. House of Representatives, "Federal Land Policy and Management Act of 1976," H.Res. 1284, H. 7581, Congressional Record, U.S. Congress, Washington, D.C., July 22, 1976.

U.S. House of Representatives, "Conference Report," providing for the Management, Protection, and Development of the National Resource Lands and Other Purposes, Report No. 94-1724, 94th Congress, Second Session, U.S. Congress, Government Printing Office, Washington, D.C., September 26, 1976.

U.S. Statutes, Federal Land Policy and Management Act of 1976, Public Law 94-579, 94th Congress (90 Stat. 2743), Government Printing Office, Washington, D.C., October 21, 1976.

Vallentine, John F., "An Improved AUM for Range Cattle," Journal of Range Management, Vol. 18, No. 6, November, 1965.

Voight, William, Public Grazing Lands: Use and Misuse by Industry and Government, Rutgers University Press, New Brunswick, New Jersey, 1976.

Wennergren, E. B., and N. K. Roberts, "Determining Speical Use Fees on Federal Grant Lands," Bull. 452, Agricultural Experiment Station, Utah State University, Logan, April, 1965.

Western Agricultural Economics Research Council, "Economic Research in the Use and Development of Range Resources," Report No. 6 conference proceedings of the Committee on Economics of Range Use and Development at Reno, Nevada, report published under direction of N. Keith Roberts, Utah State University, Logan, June 16-17, 1964.

Wilson, Tom, "Integration in the Use of Public and Private Range in Pacific Northwest Ranching," Journal of Range Management, 1969.

Woodworth, Bruce M., "Optimizing the Calf Mix on Range Lands With Linear Programming," Journal of Range Management, Vol. 26, No. 3, May, 1973.

"1976 Annual Report of the Department of Public Lands and Farm Loans," Wyoming State Department of Public Lands and Farm Loans, Cheyenne, July 1, 1975-June 30, 1976.

Zwick, Charles J., "Fees and Charges as Tools of Public Policy," paper presented at SRM annual meeting in New Orleans, Louisiana, February, Journal of Range Management, Vol. 19, No. 5, September, 1966.

Taxes

Problem Definition and Justification

The agricultural sector historically has paid a disproportionate share of its portion of national income to property taxes. During the 1932-75 period, farm property taxes accounted for 8.0 percent of all property taxes, but the national income originating in farming was 4.0 percent of total national income. Viewed another way, during this span property taxes took 7.9 percent of national income originating in farming and only 4.0 percent of the national income originating in the nonfarm sector. Farm incomes have typically been lower than those in the nonfarm sector, but the evidence is inconclusive whether much of the higher property tax bill for farmers can be blamed on the regressivity of the tax. The relative capital intensity of the agricultural sector may be the primary cause of its higher property tax payments.

How the agricultural sector fares in a comparative sense with the nonagricultural sector depends upon the relative distribution of capital ownership between the sectors by income level. Evidence suggests that there is a much higher ratio of wealth to income in the agricultural sector. Moreover, internal agricultural-sector wealth is skewed much more toward the lower end of the income scale than is true for the economy as a whole. These factors tend to negate a substantial part of the potential progressivity of the property tax within the agricultural sector. It follows that the agricultural sector could still end up paying more than its share of the tax, due to comparatively more wealth relative to income at the lower income levels. More evidence on the income-wealth relationships is needed, but it appears that the agricultural sector faces a horizontal inequity concerning the property tax.

The property tax also may be viewed as a wealth tax and this leads to other conclusions. When horizontal equity between sectors is measured by the ratio of taxes to wealth, it becomes evident in terms of this measure that the agricultural sector traditionally has paid proportionately less property tax than has the nonagricultural sector. Available data show that this conclusion holds for the entire post-1935 time period. In 1935, the ratio of property taxes to wealth was .010 (1.0 percent) for the agricultural sector and .015 (1.5 percent) for the nonagricultural sector. In 1974, the ratios were .006 and .014, respectively. Throughout the 30-year span, the range of difference in favor of the agricultural sector has varied from .002 to .007. (The range was not significantly altered

when the nonprofit sector was subtracted from the nonagricultural sector.) The above conclusions must be tempered somewhat because the evidence suggests that property taxes are largely capitalized into farm property values, which depresses the farm values and distorts comparisons with other sectors to some degree.

Nevertheless, interesting as the tax-wealth data are, they do not represent a final answer to the question of relative tax burden between sectors. Taxes typically are paid from current income so the concern about the relative tax/income ratios tends to dominate that for the relative tax/wealth ratios--and the concern for the agricultural sector's comparative "burden" continues.

Various attempts have been taken to help the agricultural sector with its property tax burden. These include laws: (1) giving preferential or use-value assessment for farmland, (2) granting the exemption of major classes of farm personal property from taxation, and (3) establishing some homestead and circuit breaker tax relief plans. There are pros and cons to this growing movement to provide relief by making such changes and thus eroding the tax base. Farm use value assessment is no exception. The homestead and circuit breaker approach does not favor farmers in many instances. However, the exemption of personal property tends to give farmers a significant boost because of their typically substantial investment in livestock and machinery.

Viewed abstractly it would seem that further reform in local government financing is required to make the property tax more equitable for agriculture. But it must be kept in mind that any movement to nonproperty taxes by higher levels of government, and concomitant increased intergovernmental revenues flowing down to lower governmental levels, could cause local citizens to lose some degree of control over their local institutions. Despite criticism on a number of grounds, the property tax has afforded a considerable degree of local flexibility and control in rural areas.

Property tax incidence should not be viewed alone, but rather as part of a national tax system--federal, state, and local. For example, local property taxes are a deductible item on federal income taxes. Though the property tax may appear to be burdensome, it may lower the federal income tax bill of the high-income taxpayer significantly.

The basic historical factors that have been influencing the farm property tax do not appear likely to change significantly in the near future. Thus, the long-run horizontal inequity of the property tax borne

by the agricultural sector, when measured in terms of tax/income ratios, is likely to continue.

It may not be feasible to evaluate a tax system in the OWR context because of state differences in both constitutional and statutory laws. However, a study of the impact of federal income tax laws and federal estate tax laws on farmers and ranchers would be a useful and researchable effort on a regional basis in the Old West States.

Selected References

Aaron, Henry J., "A New View of Property Tax Incidence," American Economic Review, Vol. 64, No. 2, May, 1974, pp. 212-221.

Advisory Commission on Intergovernmental Relations, Financing Schools and Property Tax Relief--A State Responsibility, A-40, Washington, D.C., January, 1973.

Advisory Commission on Intergovernmental Relations, Property Tax Circuit Breakers: Current Status and Policy Issues, M-87, Washington, D.C., February, 1975.

Bailey, Mary L., Farm Real Estate Taxes: Recent Trends and Developments, RET-15, U.S. Department of Agriculture, Economic Research Service, March, 1976.

Carlin, Thomas A., and Edward I. Reinsel, "Combining Income and Wealth: An Analysis of Farm Family 'Well-Being,'" American Journal of Agricultural Economics, Vol. 55, No. 1, February, 1973, pp. 38-44.

Mason, Gaffney M., "The Property Tax is a Progressive Tax," Proceedings of the Sixty-Fourth Annual Conference on Taxation, National Tax Association, 1971, pp. 409-426.

Musgrave, Richard A. "Is a Property Tax on Housing Regressive?" American Economic Review, Vol. 64, No. 2, May, 1974, pp. 222-229.

Netzer, Dick, Economics of the Property Tax, Brookings Institution, Washington, D.C., 1966.

Netzer, Dick, "The Incidence of the Property Tax Revisited," National Tax Journal, Vol. 26, No. 4, December, 1973, pp. 515-535.

Paglin, Morton, "The Measurement and Trend of Inequality: A Basic Revision," American Economic Review, Vol. 65, No. 4, September, 1975, pp. 598-609.

Pasour, E. C., Jr., "The Capitalization of Real Property Taxes Levied on Farm Real Estate," American Journal of Agricultural Economics, Vol. 57, No. 4, November, 1975, pp. 540-548.

Pechman, Joseph A., and Benjamin A. Okner, Who Bears the Tax Burden? Brookings Institution, Washington, D.C., 1974.

Smith, Allen G., "Comparative Investment Per Worker in Agriculture and Manufacturing Sectors of the Economy," American Journal of Agricultural Economics, Vol. 53, No. 1, February, 1971, pp. 101-102.

Stam, Jerome M., and Ann Gordon Sibald, "The Agricultural Sector and Horizontal Equity of the Property Tax: A Historical Look," Journal of the Northeastern Agricultural Council, Vol. 5, No. 2, October, 1976.